



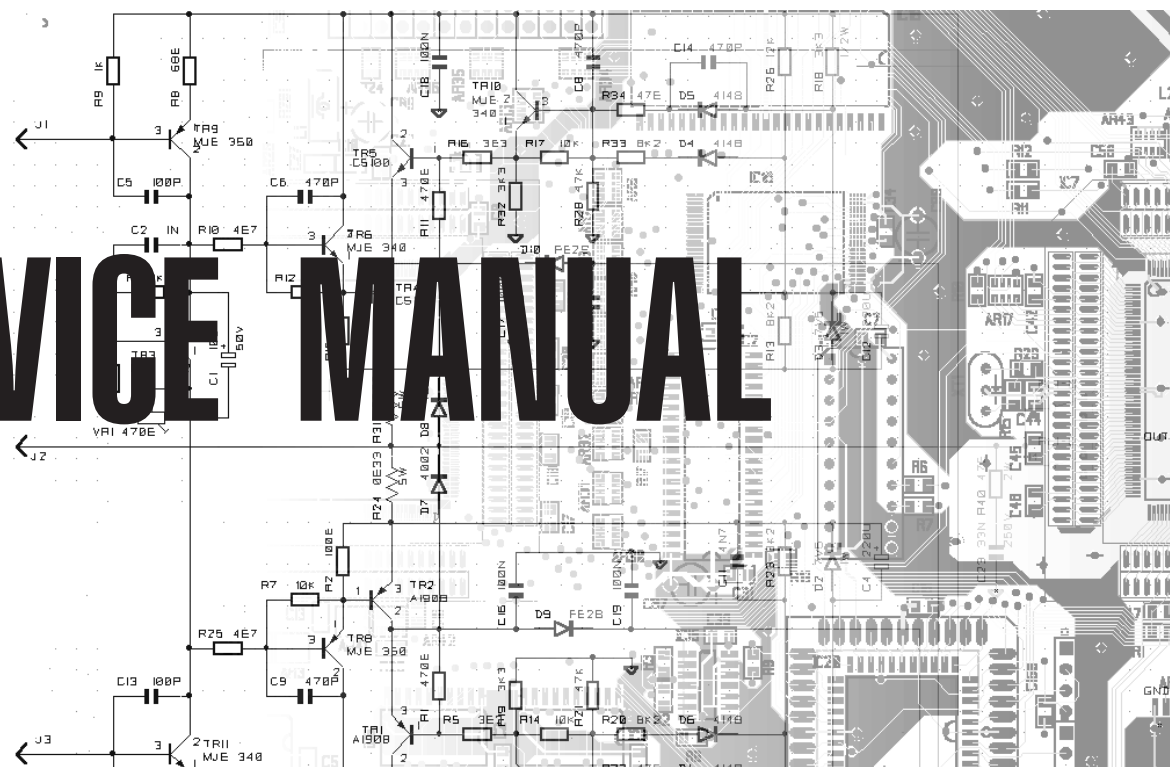
RP220

RealPiano

Pianovelle



SERVICE MANUAL



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Warnings



Notice

Service must be carried out by qualified personnel only. Any tampering carried out by unqualified personnel during the guarantee period will forfeit the right to guarantee.

For a correct operation of the instrument, after having switched off, be careful to wait at least 3 seconds before switching on again.

To improve the device's specifications, the schematic diagrams may be subject to change without prior notice.

All components marked by this symbol have special safety characteristics, when replacing any of these components use only manufacturer's specified parts.

The (μ) micro symbol of capacitance value is substituted by U.

The (Ω) omega symbol of resistance value is substituted by E.

The electrolytic capacitors are 25Vdc rated voltage unless otherwise specified.

All resistors are 1/8W unless otherwise specified.

All switches shown in the "OFF" position. All DC voltages measured to ground with a voltmeter 20KOhm/V.

← Soldering point.

• Male connector.

○ Female connector.

— M/F faston connector.

↑ Supply voltage.

□ Test point.

◊ Flag joined with one or more flags with the same signal name inscribed.

⊥ Logic supply ground.

⊥ Analog supply ground.

⊥ Chassis ground.

⊥ Earth ground.



ATTENTION

Observe precautions when handling electrostatic sensitive devices.

Address



GENERALMUSIC S.p.A. Sales Division: 47842 S.Giovanni in Marignano (RN) ITALY - Via delle Rose, 12

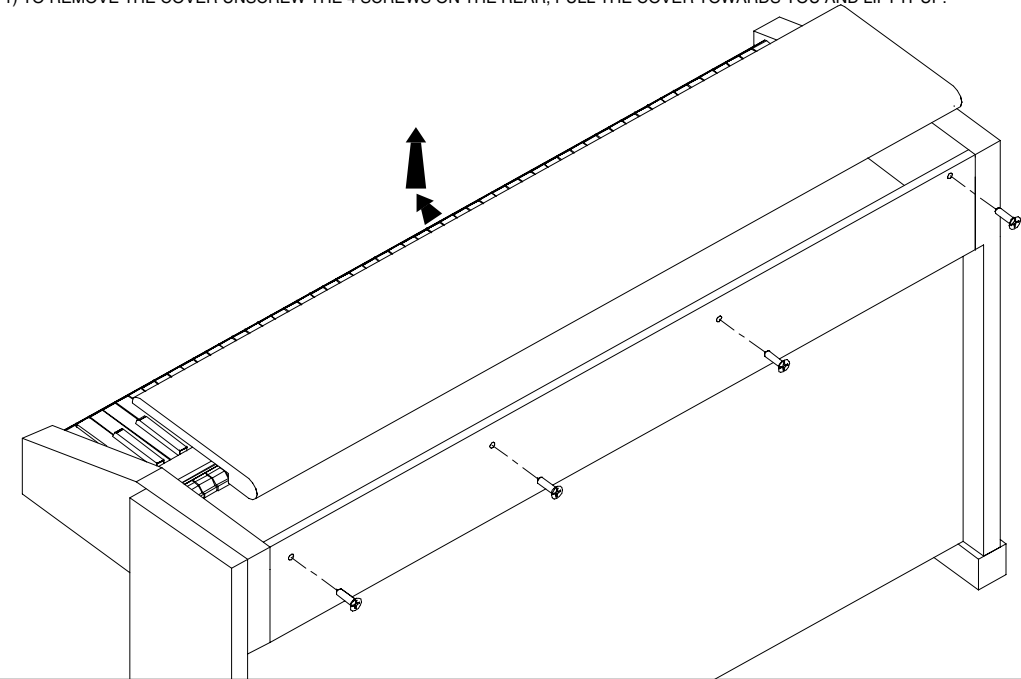


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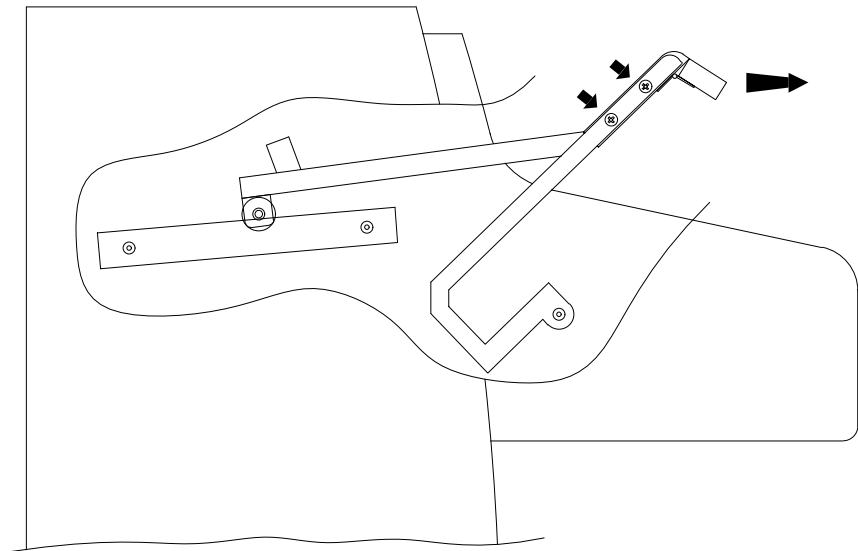


▶ CODE: 270247 ◀

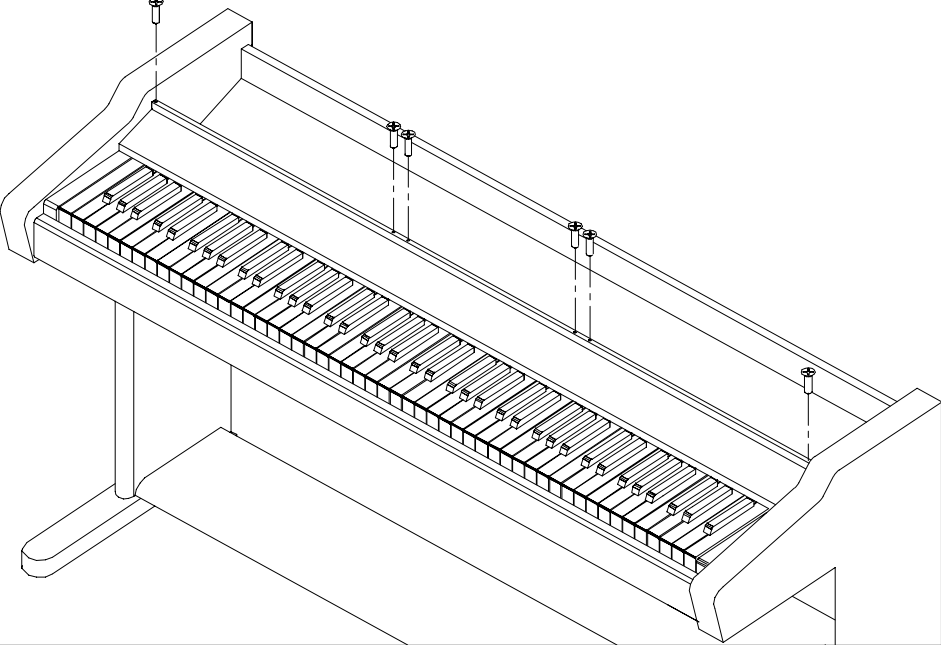
1) TO REMOVE THE COVER UNSCREW THE 4 SCREWS ON THE REAR, PULL THE COVER TOWARDS YOU AND LIFT IT UP.



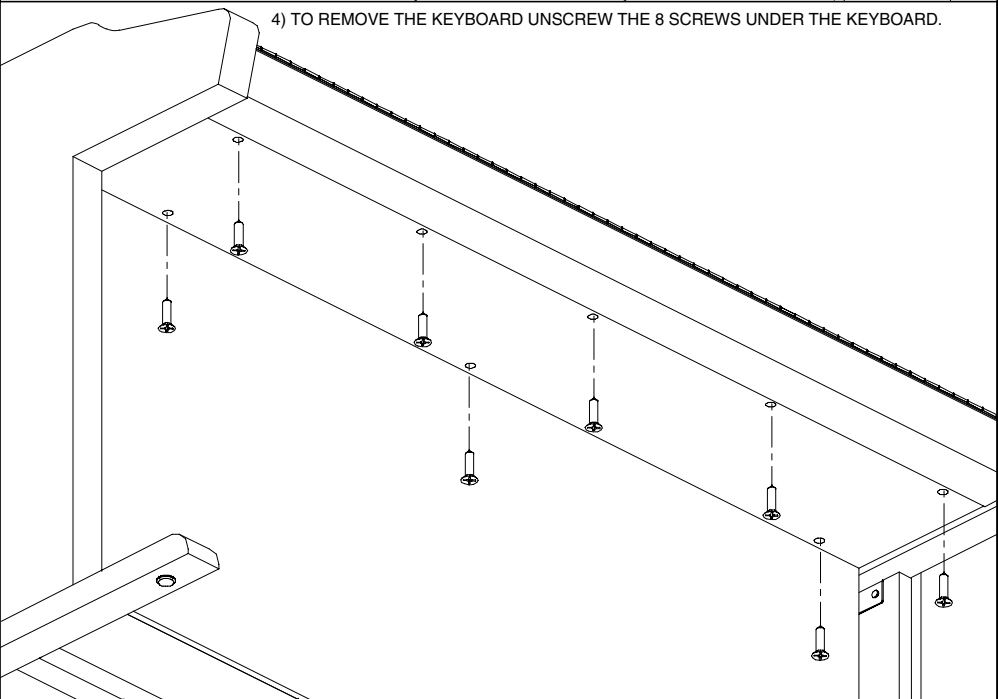
2) TO REMOVE THE KEYBOARD COVER UNSCREW THE FOUR SCREWS ON THE BARS (TWO FOR EACH SIDE), AND PULL OUT THE KEYBOARD COVER.



3) TO REMOVE THE CONTROL PANEL UNSCREW THE SCREWS AT EACH END AND THE SCREWS THAT ANCHOR THE CONTROL PANEL SUPPORTS TO THE CHASSIS.



4) TO REMOVE THE KEYBOARD UNSCREW THE 8 SCREWS UNDER THE KEYBOARD.

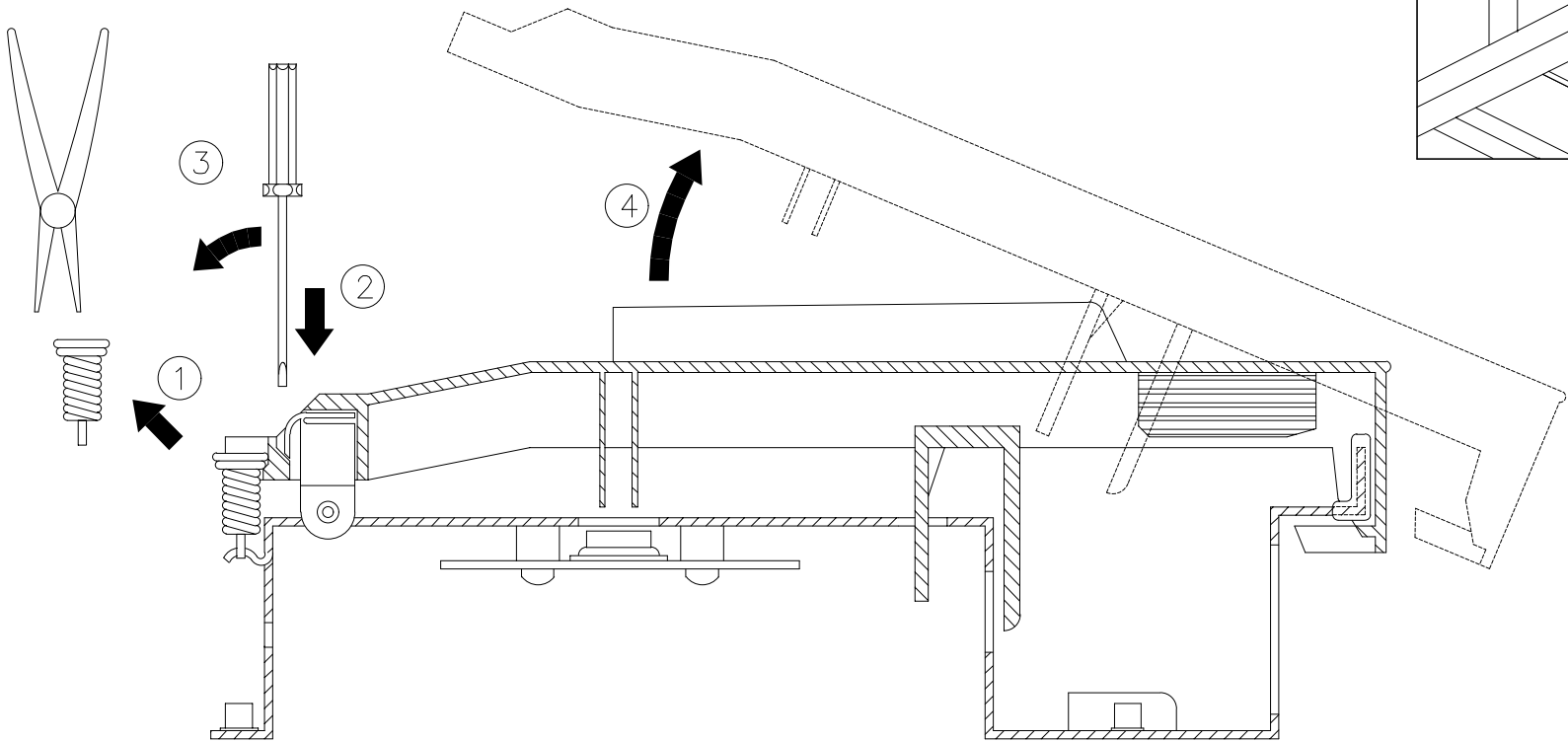


① REMOVE THE KEY RETURN SPRING.

②③④ UNLOCK THE KEY APPLING NOT MUCH STRENGTH.

NOTE: TO REMOVE A SHARP KEY BEFORE YOU MUST REMOVE THE NEAR NATURAL KEYS.

TP10



RP200-220 GRP300 INITIAL CHECK											
Operations Description						Display					
The following procedures must be executed subsequently in the specified order.							RP200				
Before turn on the instrument check the jumpers setting on CPU & SOUND GENERATOR BOARD corresponds at the model accordingly to the following table:							REALPIANO				
							GEM				
MODEL	J4	J5	J3	J6	J2		PIANOVELLE				
RP200 GEM	1-2	1-2	1-2	1-2	1-2		RP200				
RP200 BALDWIN	1-2	1-2	1-2	1-2	2-3		BALDWIN				
GRP300 GEM	1-2	1-2	1-2	2-3	1-2 v.2.00 or greater						
GRP300 BALDWIN	1-2	1-2	1-2	2-3	2-3 v.2.00 or greater		GRP300				
RP220 GEM	1-2	1-2	2-3	1-2	1-2 v.2.02 or greater		REALPIANO				
RP220 BALDWIN	1-2	1-2	2-3	1-2	2-3 v.2.02 or greater		GEM				
Remove the secondary fuses F1, F2, F3, located on POWER AMPLIFIER & SUPPLY BOARD; turn on the instrument and verify the supply AC voltages: (CN6) between pin1 and pin2 = 27,5 ± 1,5Vac (CN6) between pin1 and pin3 = 27,5 ± 1,5Vac (CN6) between pin2 and pin3 = 55 ± 3Vac (CN12) between pin1 and pin2 = 16 ± 0,8Vac (CN12) between pin1 and pin3 = 16 ± 0,8Vac (CN12) between pin2 and pin3 = 32 ± 1,6Vac							PIANOVELLE				
							GRP300				
							BALDWIN				
							RP220				
							REALPIANO				
							GEM				
							PIANOVELLE				
							RP220				
							BALDWIN				
Turn off the instrument, and put the fuses back on its holders.											
Turn on the instrument and the appropriate welcome message appears on the display.											
A few seconds later the led GRAND PIANO light. Check the supply DC voltages on CPU & SOUND GENERATOR BOARD: (CN8) between pin9 and pin7 = +5 ± 0,25Vdc (CN8) between pin1 and pin4 = +12 ± 0,6Vdc (CN8) between pin1 and pin5 = -12 ± 0,6Vdc							INTERNAL PRESET				
							GRAND PIANO				
							GR.PIANO sel.:1				

RP200-220 GRP300 AUTOTEST PROCEDURE	
Operations Description	Display
The instrument starts in AUTOTEST mode turning on the instrument while pressing down the "GRAND PIANO" button (pressing PRESET instead GRAND PIANO the procedure starts from LCD display test). NOTE: Each time you press the "GRAND PIANO" button the autotest procedure proceeds to the next step.	RP98 AUTOTEST
Set the default display contrast in the ± 6 range by pressing the DATA + or - buttons.	CONTRAST = #
The instrument shows the date, time and release version of the software loaded in flash memory.	mm dd yyyy hh:mm:ss V #.##
The instrument asks if you want to update it, press GRAND PIANO to skip, the appropriate procedure to update the software is explained further.	EPROM to FLASH push REC to prog
The instrument performs the flash memory data checksum and display it in hexadecimal value. NOTE: the BT (boot) value must be EAAB for ver.2.00, if it does not correspond you can not update software thru serial port but only with Update Software Board see more further. For example version 2.02 has BT=EAAB PR=A5F4 and ALL=909F.	Wait * Eprom Checksum cks BT PR ALL #### #### ####
The instrument performs the "LIBRARY" Rom memory data checksum and display it in hexadecimal value.	Wait * Library Checksum Wait ok! Checksum: A021
The instrument performs the RAM memory test showing the address checked.	RAM MEMORY CHECK addr 23BFFF OK
The LCD display test fades from light to dark and viceversa.	██████████ ██████████ ██████████
Check that all leds are lighting.	--- LED TEST --- Are all leds on?

<p>Check the VOLUMES ranges from 0 to 127.</p> <p>Check all buttons (except GRAND PIANO) pressing their one at a time and checking that corresponding led lights, pressing PAGE UP and DOWN buttons the display shows "U" and "D", pressing DATA + and - buttons the display shows "+" and "-", pressing MASTER EQ and DSP buttons the display shows an "X" in 1 and 2 digits, pressing UP, LEFT, DOWN and RIGHT buttons the display shows an "X" in 3, 4, 5 and 6 digits respectively.</p>	<pre> Button test Vol:0 123456 U Button test + D Vol:127 - XXXXXX </pre>
<p>Check the SOFT and SUSTAIN pedals, pressing each one the value change from 0 (released) to 127 (pressed), the DAMPER pedal varying its value continuously from 0 (released) to nearly 127 (pressed).</p>	<pre> Soft Sust Damp 0 0 0 </pre>
<p>Check the MIDI I/O connecting the MIDI OUT and MIDI IN sockets by a MIDI cable.</p>	<pre> TEST MIDI IN/OUT LOOP DETECTED OK </pre>
<p>Check COMPUTER I/O shorting pin 3 and pin 5 on the COMPUTER socket, check with the oscilloscope a 4Vpp (1Mhz) signal on pin 1, set volume to half stroke.</p>	<pre> TST COMPUTER I/O LOOP DETECTED OK </pre>
<p>The instrument generates a 1KHz sinusoidal signal in both audio channels reading data from 104043 ROM. VOLUME controls the amplitude of signal and TRANSPOSE b and # buttons controls the frequency from 10Hz to 2756Hz.</p>	<pre> SINUS. SWEEP Freq. 1000 Hz </pre>
<p>Re-set the frequency at 1KHz and check HEADPHONES and AUX outputs with the oscilloscope inserting a stereo jack in the left phones socket (speakers will go be silent) and two mono jack in the AUX OUT sockets and set volume to its maximum.</p>	
<p>Now verify the following level of signals: Phones output without load = $5,7 \pm 1.1V_{pp}$ and AUX output = $0,8 \pm 0,16V_{pp}$</p>	
<p>Set the VOLUME to minimum.</p>	
<p>Apply a sinusoidal signal of 0.730Vpp at 1KHz with a generator to the AUX IN left and right sockets and verify the signal output: AUX output = $1,35 \pm 0.07V_{pp}$</p>	
<p>The instrument generates a tone signal in both audio channels reading data from 104023 ROM.</p>	<pre> TONE ON 104023 </pre>
<p>Autotest is over, turn off the instrument.</p>	<pre> TEST END: SWITCH POWER TO RESTART </pre>

RP200-220 GRP300 O.S. UPDATING PROCEDURE up to ver. 2.00 with Updating Software Board (751180)	
Operations Description	Display
Start with the instrument in AUTOTEST mode as described above and press GRAND PIANO 2 times until the display show the software version loaded in flash memory.	<pre> mmmm dd yyyy hh:mm:ss V #.## </pre>
Press GRAND PIANO to skip this procedure.	<pre> EPROM to FLASH push REC to prog </pre>
The instrument performs the flash memory data checksum and displays it in hexadecimal value.	<pre> Wait * Eprom Checksum cks BT PR ALL #### #### #### </pre>
Compare the software version and checksum with the value imprinted onto the EPROM, if one of these does not match, the system must be upgraded, proceed to the next step.	
Turn off the instrument.	
Insert the EPROM BOARD (where the operating system is stored) in the CN3 connector located on CPU & SOUND GENERATOR BOARD.	
Start with the instrument in AUTOTEST mode as described above and press GRAND PIANO 3 times.	
When the display shows this message press REC.	<pre> EPROM to FLASH push REC to prog </pre>
The instrument erases the previous data in flash memory. After which the instrument displays the amount of memory programming and finally the operation successful. If the programming fails check the EPROM BOARD connection and repeat this procedure from start.	<pre> EPROM to FLASH erasing EPROM to FLASH prog: 1024/1024K </pre>
The instrument performs the eprom memory data checksum and display it in hexadecimal value, compare this value with the value imprinted onto the EPROM: if it matches the EPROM is good.	<pre> Wait * Eprom Checksum cks BT PR ALL #### #### #### </pre>

Turn off the instrument and disconnect the EPROM BOARD.	
Start with the instrument in AUTOTEST mode as described above and press GRAND PIANO 2 times until the display show the new software version loaded in flash memory.	mmm dd yyyy hh:mm:ss V #.##
Press GRAND PIANO to skip this procedure.	EPROM to FLASH push REC to prog
The instrument performs the flash memory data checksum and display it in hexadecimal value, compare this value with the value imprinted onto the EPROM: if it matches the procedure has been executed succesfully.	Wait * Eprom Checksum cks BT PR ALL #### #### ####
The procedure proceed as described in AUTOTEST section, if you do not want to check the rest of the instrument simply turn off it.	

RP200-220 GRP300 O.S. UPDATING PROCEDURE from Serial Port (COMPUTER) ver. 2.xx or greater

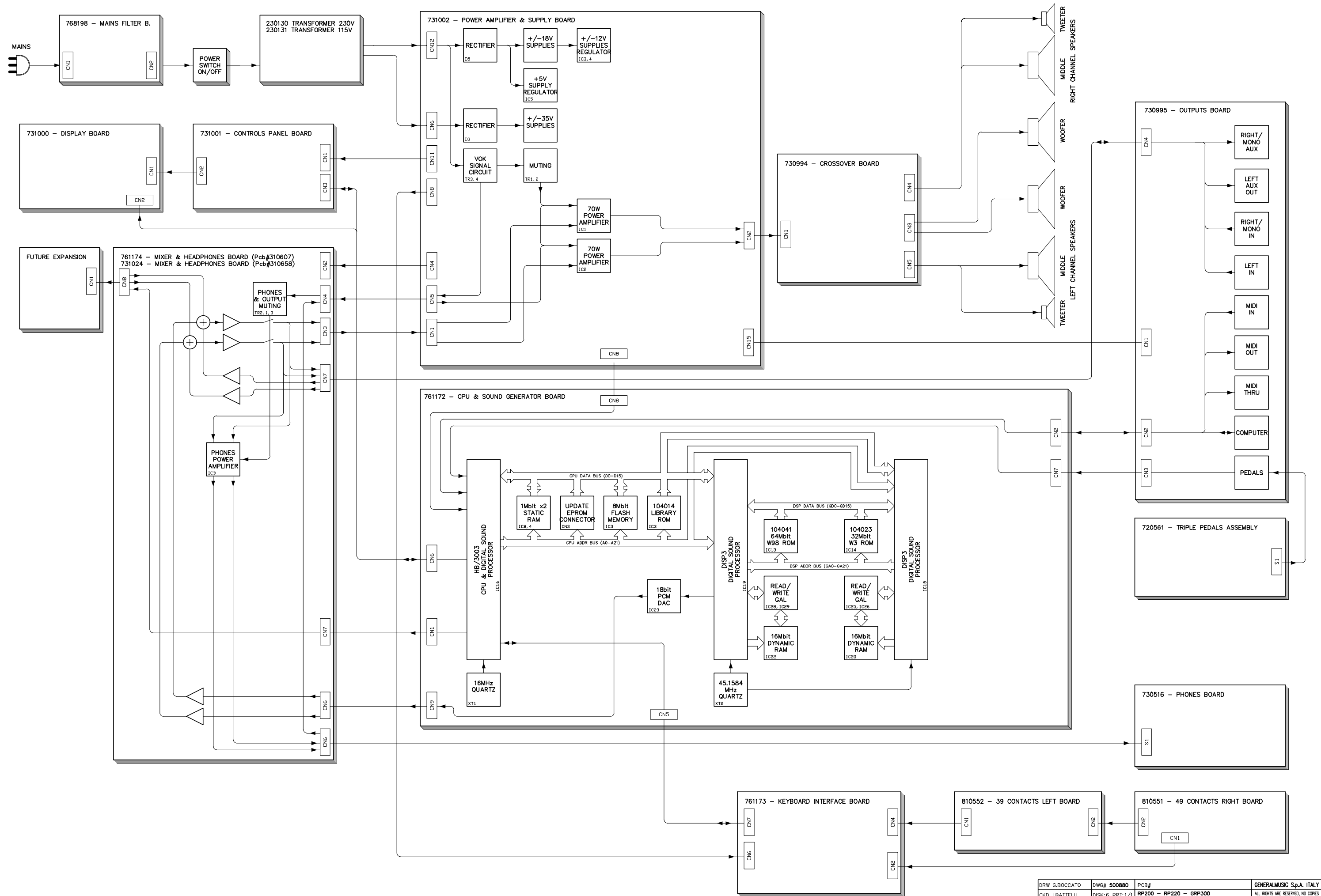
Operations Description	Display
NOTE: This procedure is valid only if the software version installed on the piano is the 2.00 or greater. Some additional tips and advices are included in the Flashblaster Firmware Update Disk. The disk containing the Fblaster program can also be downloaded by internet at generalmusic web site (www.generalmusic.com) or required at support@generalmusic.com	
Connect the serial cable between the COMPUTER of the piano and the RS232 COM port of the computer (PC-Ibm or compatible).	
Insert the disk in the drive A (or whatever your 3.5" drive is assigned to), open the contents of drive A and double click on the fblaster.exe file.	
From the OPTIONS/SETTINGS menu, make sure that the TEST AND PROGRAM choice is selected. This is very important.	
Turn on the piano, while holding down the REC button until the display shows:	READY TO UPDATE
Click with the mouse on the GO! button or, from the ACTION menu, select EXECUTE (ALT+A, E). The piano display appears as follows:	TESTING... n1/n2 PACKETS
At the end of the test the following display appears:	TEST OK
After a short time, the following display appears:	ERASING...
You are now erasing the old operating system from FLASH memory. When the system is erased, the following display appears as your new operating system is installed into Flash Memory:	UPDATING... n1/n2 PACKETS
When the entire update procedure is completed, the following display appears:	UPDATE OK:SWITCH POWER TO RESTART
The update has now been successfully completed. Turn off the power switch on the piano, and turn it back on again to use your updated instrument.	

RP200-220 GRP300 Some Repairing Tips

Operations Description	Display
This message could be appear if an error occur on the communication channel. Possible solutions: 1) inconsistent data received on MIDI or COMPUTER input socket, check the ratings of the device connected to the piano. 2) if the error persist, try to replace Outputs Board first and CPU board second.	MIDI SCI error
This message could be appear if an error occur on the communication channel. Possible solutions: 1) verify all the connections between Keyboard Interface Board and the CPU board. 2) if the error persist, try to replace Keyboard Interface Board first and CPU board second.	VALIS SCI error
This message could be appear if an error occur on the communication between CPU and DISP3 chips. Possible solutions: 1) verify all the tracks, solders and components between CPU and DISP3 chips as shown in schematics. 2) if the error persist, replace the CPU board and send back to generalmusic the failed CPU board.	Disp Failure

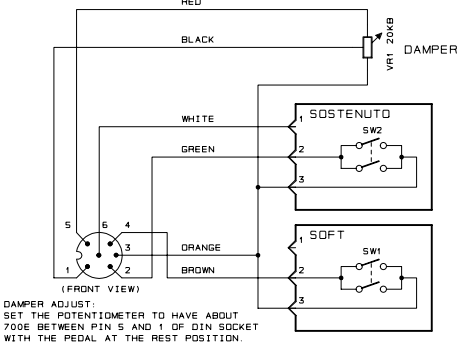
RP series FAQ

Questions		Answers
1	What do the pedals make?	Soft (left pedal): This pedal is a switch control pedal (on/off) and affects the timbre of the instrument such that it plays softer, allowing you to continue using the same playing style at a lower volume. Sostenuto only for some models (centre pedal): This pedal is a switch control pedal (on/off) which sustains the notes of the key currently depressed, all new notes played after having depressed the pedal are not affected, this pedal operates like a grand piano centre pedal. Damper (right pedal): This pedal applies the sustain effect to all notes released. If you release a note after depressing the damper, the note will proceed towards its natural decay according to the type of sound played. The Damper pedal is particularly effective with Piano type sounds, it is controlled by a " Damper Physical Model " patented by Generalmusic.
2	Why do the uppermost keys play always sustained?	For all piano sounds the notes from E6 to C8 are automatically sustained such as in an acoustic piano.
3	Why do all pedals work in reverse mode?	The instrument reads the status of the pedals at the power on and assume this status (normally open or normally closed depends by the type of pedal) as the default status in the rest position. The pedals must be inserted before you switch on the instrument.
4	Why do some pedal work in reverse mode?	For the same reason explained first you have not to press a pedal while the instrument is switched on and until it is ready to use.
5	I have replaced the DAMPER pedal potentiometer, how do I let position it correctly?	Set the potentiometer to have about 700 ohm between pin 5 and 1 of DIN plug with the pedal at the rest position. Note: the Damper potentiometer have a special resistive stroke, when you replace it use the manufacturer's part only (code 070556).
6	How can I do a complete SYSTEM RESET ?	Turn on the instrument while pressing down the "General" button. Each time you do an autotest procedure a system reset is performed.
7	Why does not the instrument respond correctly to the key pressed on keyboard after I have replaced the CPU Board?	If the CPU Board replaced is the right type check the jumper setting on it as described on this service manual and execute a complete Autotest.
8	Why does not the instrument respond correctly to the button pressed on controls panel after I have replaced the CPU Board?	If the CPU Board replaced is the right type check the jumper setting on it as described on this service manual and execute a complete Autotest.
9	Why does not the instrument respond correctly to the pedal pressed after I have replaced the CPU Board?	If the CPU Board replaced is the right type check the jumper setting on it as described on this service manual and execute a complete Autotest.
10	Why does not the Instrument retain the user presets and data?	After a long period of inactivity may be occur that the internal battery backup have not a sufficient time for re-charging during the normal activity, try to leave the instrument switched on for about 12-14 hours. Afterwards if the instrument will lost the data again, replace the battery.

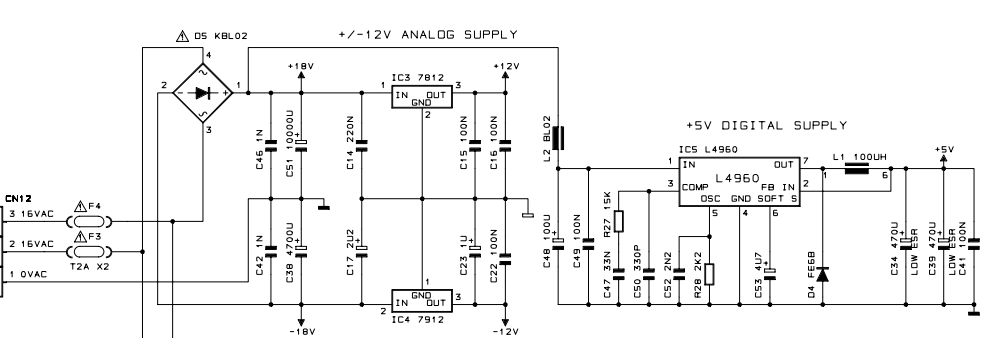


720613 - TRIPLE PEDAL ASSEMBLY

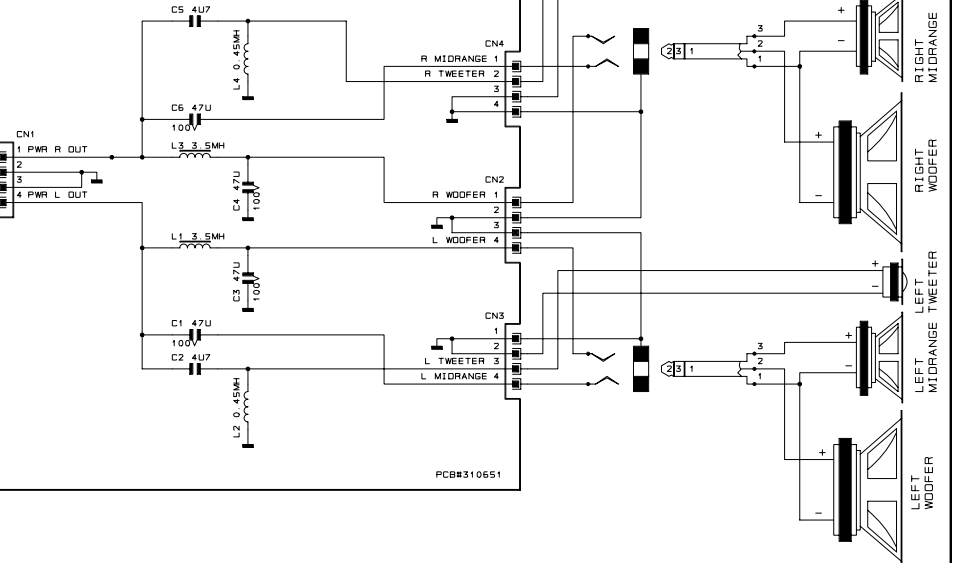
NOTE: THE DAMPER POT HAVE SPECIAL SPECIFICATIONS. REPLACE WITH MANUFACTURER'S PARTS ONLY (CODE 070556).



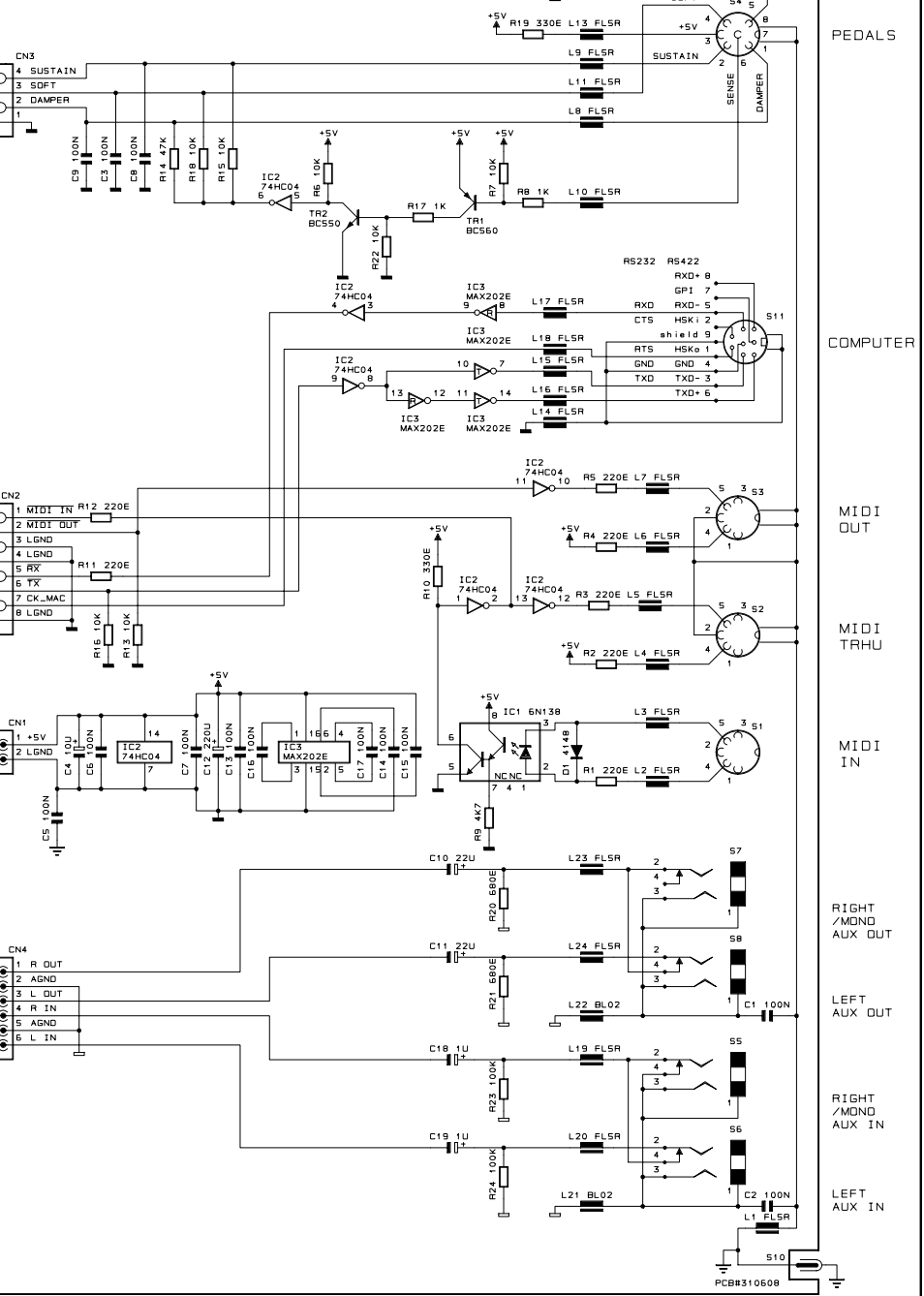
731004 - POWER AMPLIFIER & SUPPLY BOARD



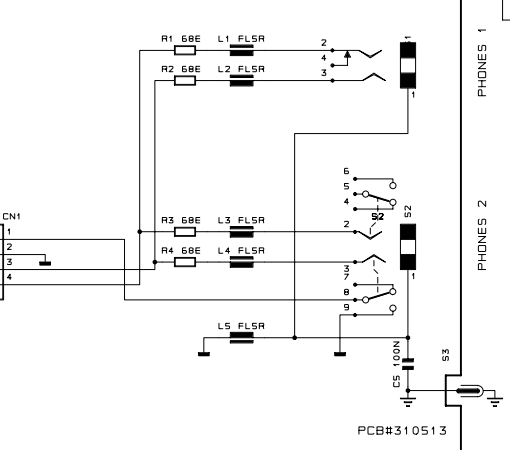
731029 - CROSSOVER BOARD



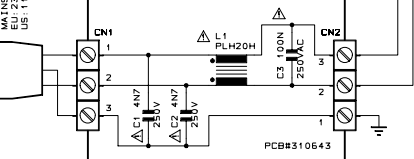
730995 - OUTPUTS BOARD



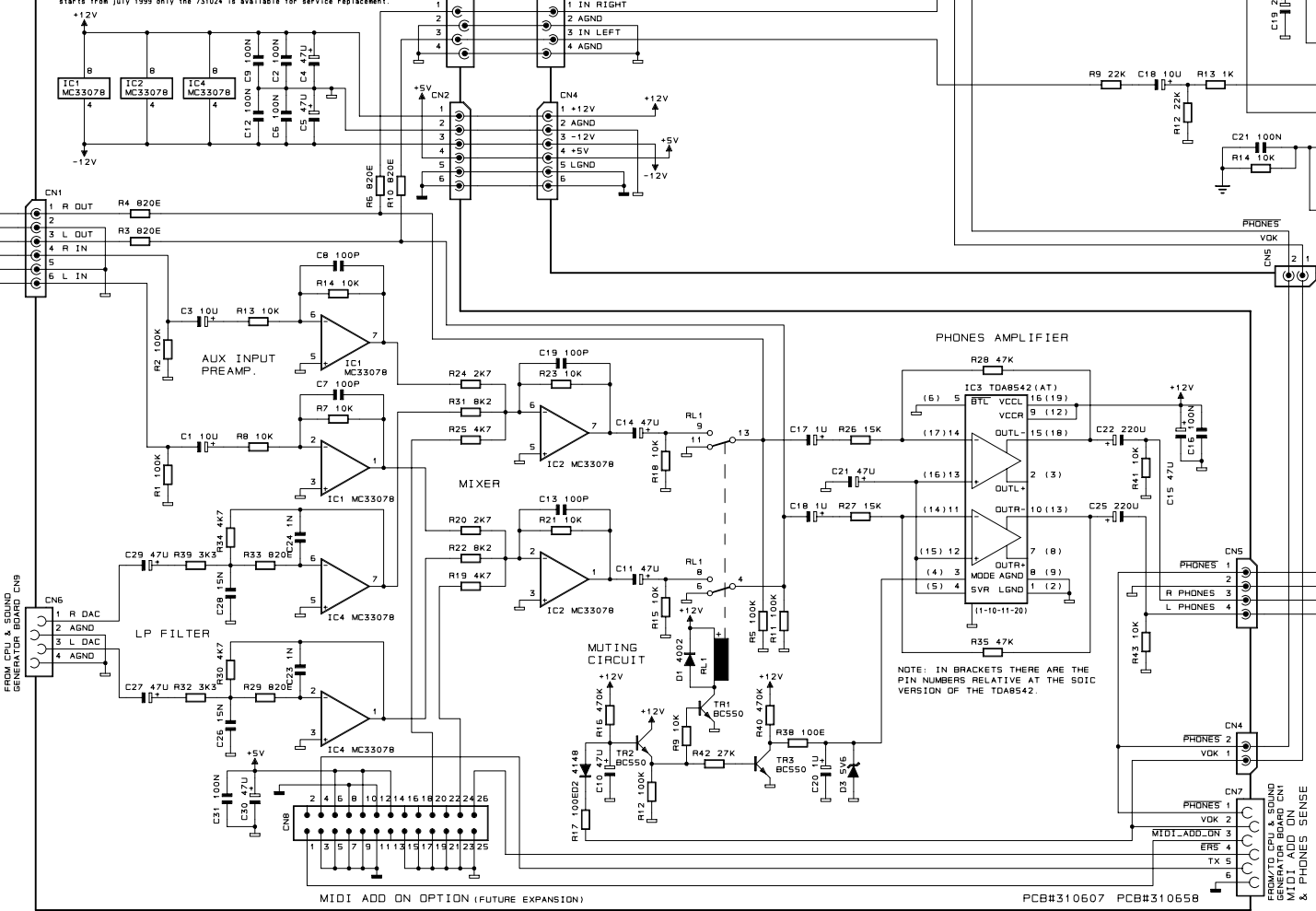
731007 - PHONES BOARD



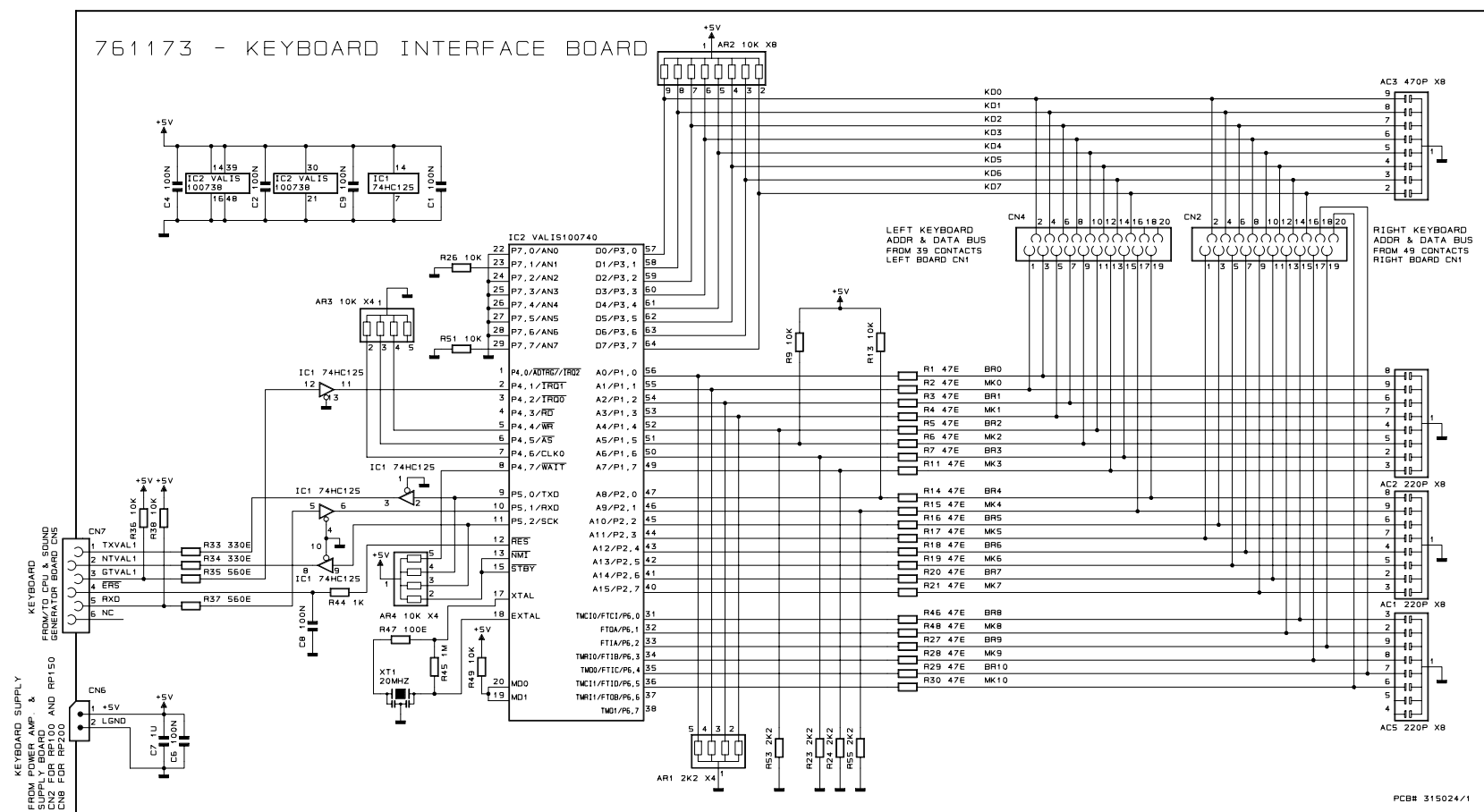
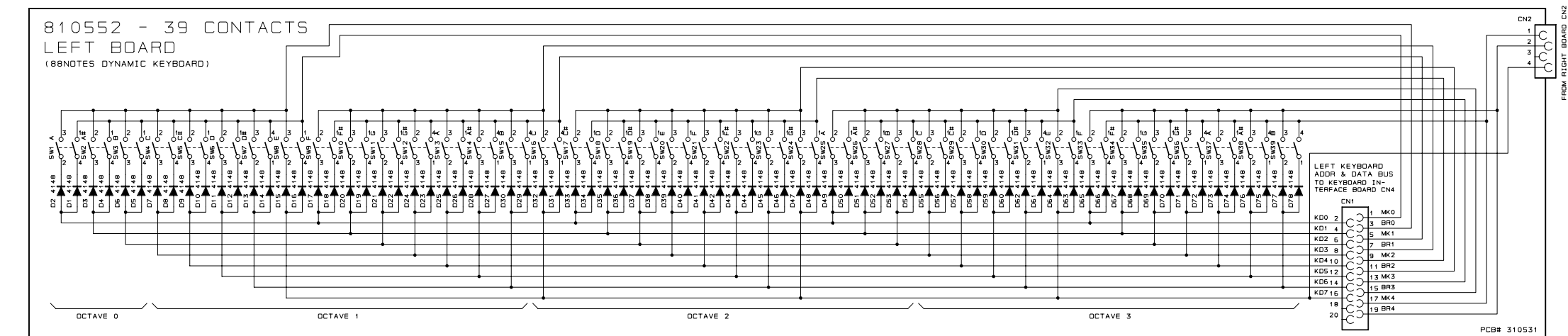
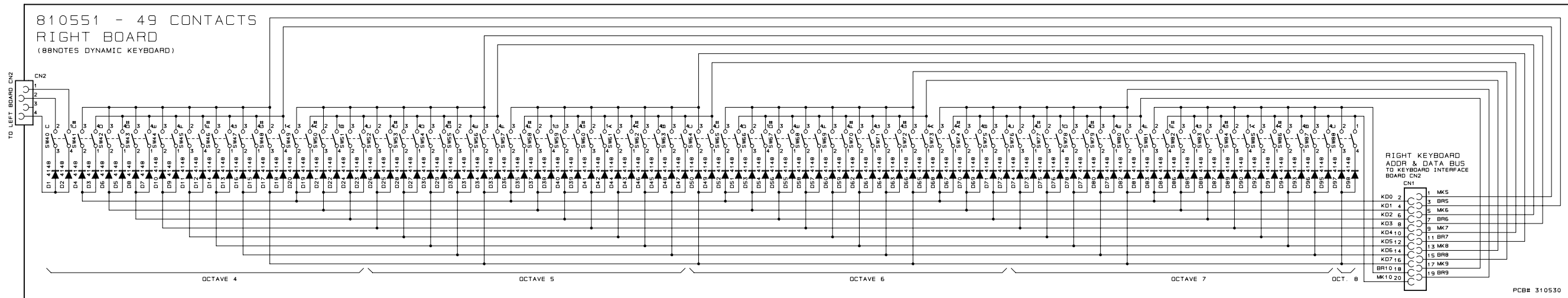
768198 MAINS FILTER BOARD



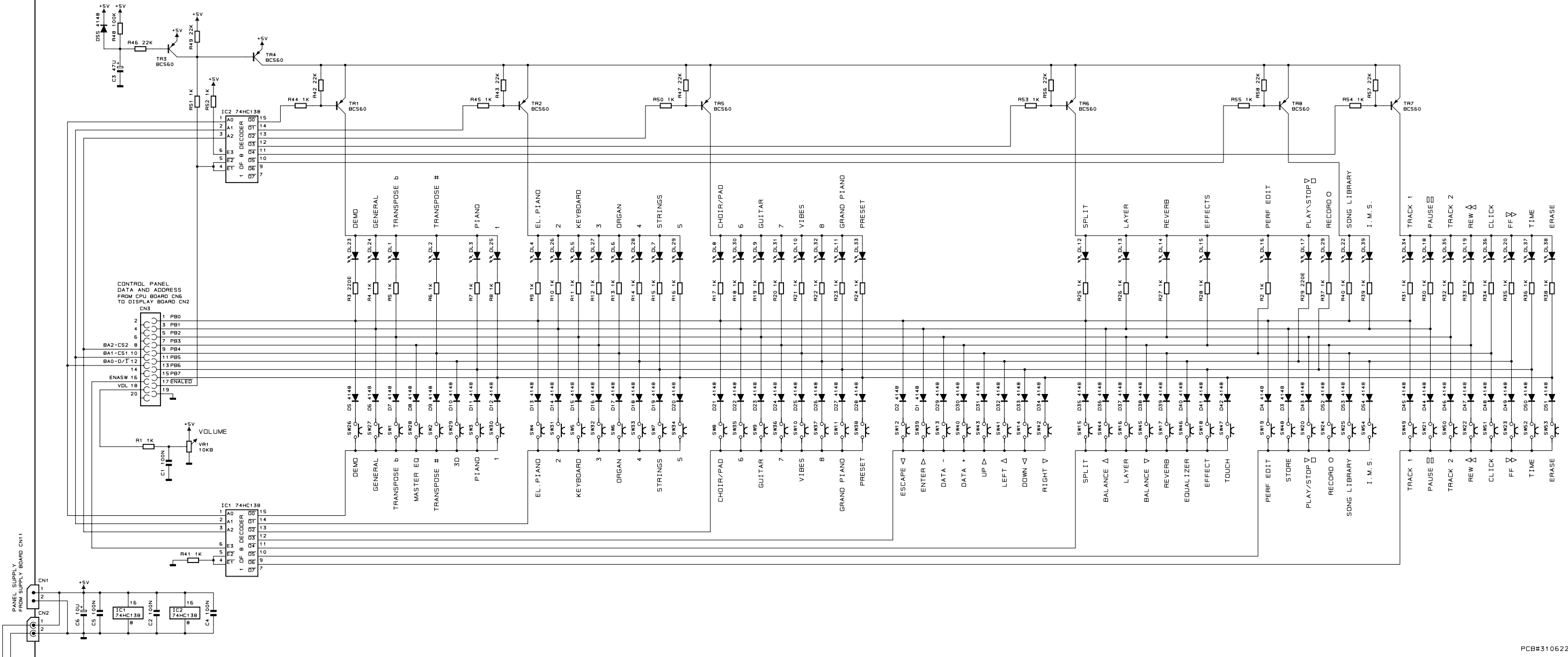
761174 with TDA8542 in DIP package. PCB#310607 731024 with TDA8542 in SOIC package PCB#310658 MIXER & PHONES AMPLIFIER BOARD



DRW G. BOCCATO	DWG# 500937	PCB# 310604 - 310658 - 310608 - 310651	GENERALMUSIC S.p.A.
CKD I. BATELLI	DATE 02-02-01	DESCRIPTION RP220	ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC
APP M. GALANTI	REV# 1/1	70+70W POWER AMP. & SUPPLY, OUTPUTS, MIXER & PHONES AMP. AND PHONES BOARDS	

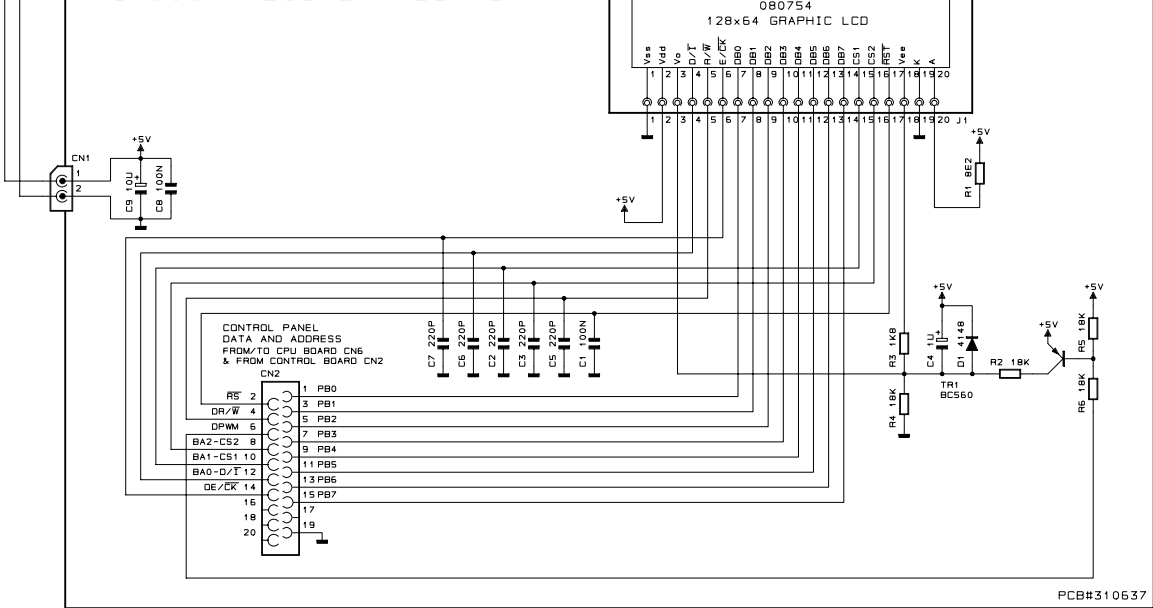


731001 - CONTROL PANEL BOARD



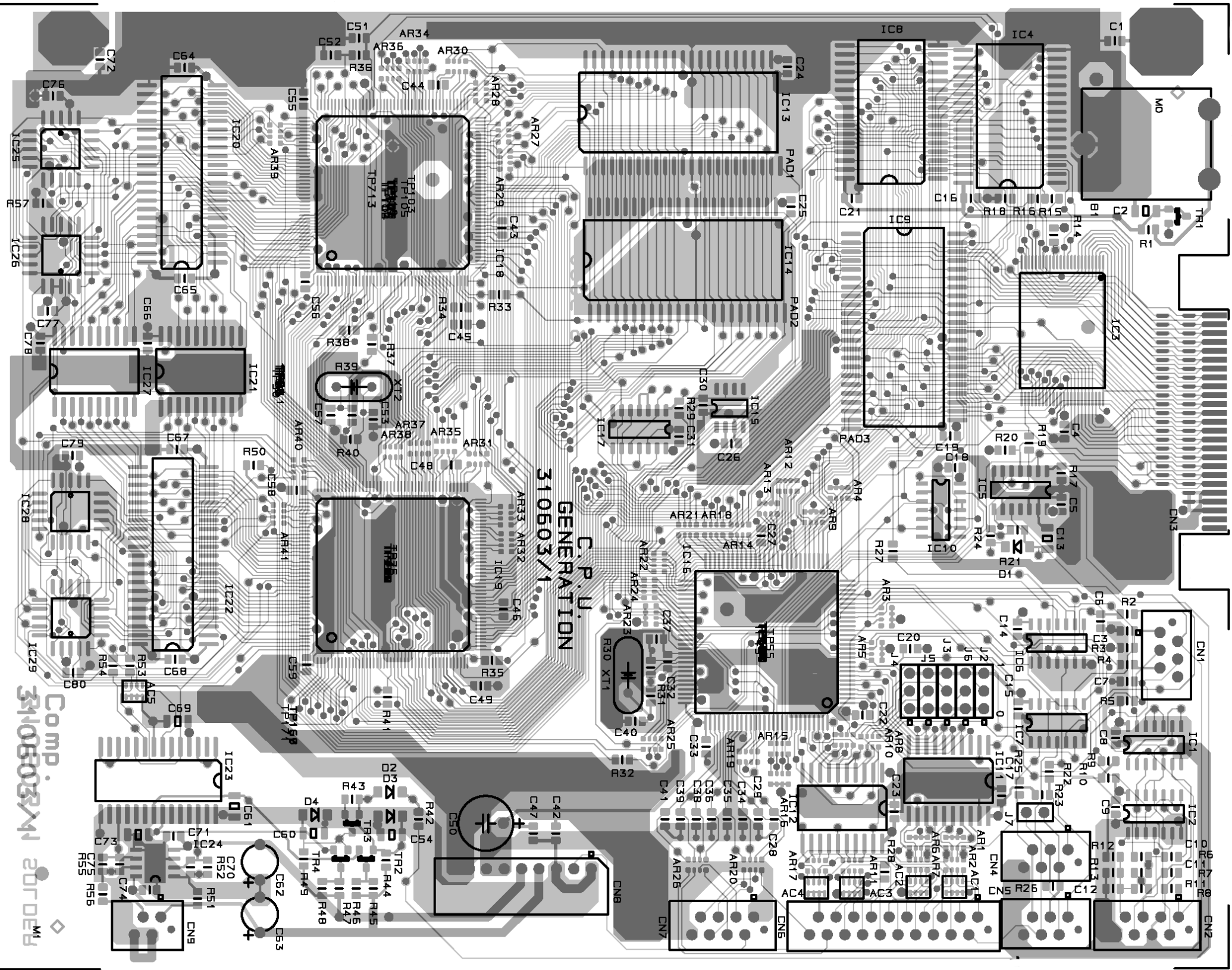
PCB#310622

731000 - DISPLAY BOARD

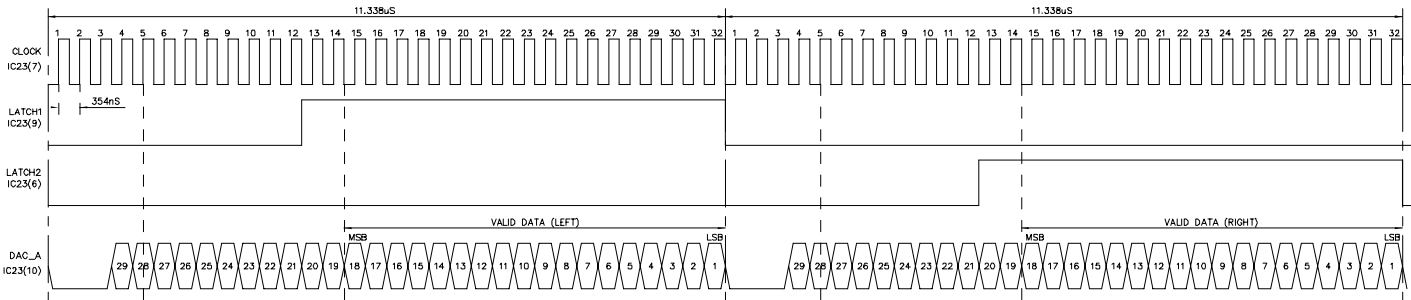


PCB#310637

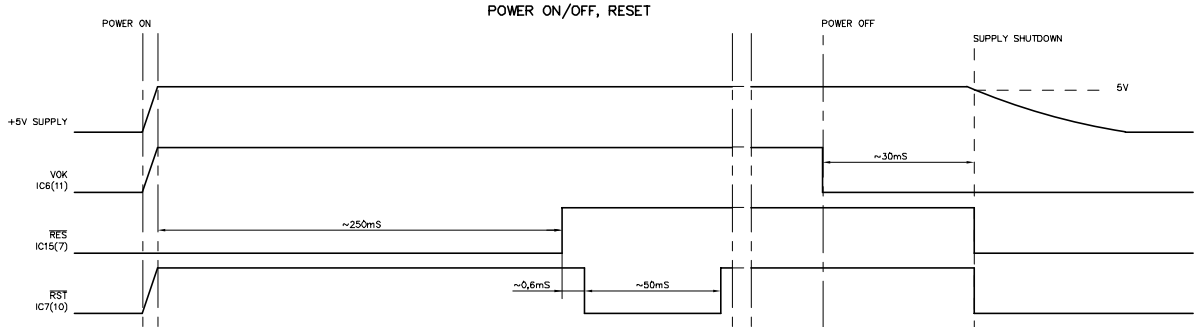
DRW R.GIORGI	DWG# 500877	PCB# 310622 - 310637	GENERALMUSIC S.p.A.
DEPT DIG.PIANO	DATE 13\07\00	DESCRIPTION RP 220	ALL RIGHTS ARE RESERVED. NO COPIES
PART# 1 OF 1	REV# B	CONTROL PANEL BOARD	OR REPRODUCE THIS DOCUMENT WITHOUT
		DISPLAY BOARD	WRITTEN CONSENT BY GENERALMUSIC



PCM SERIAL DATA BUS

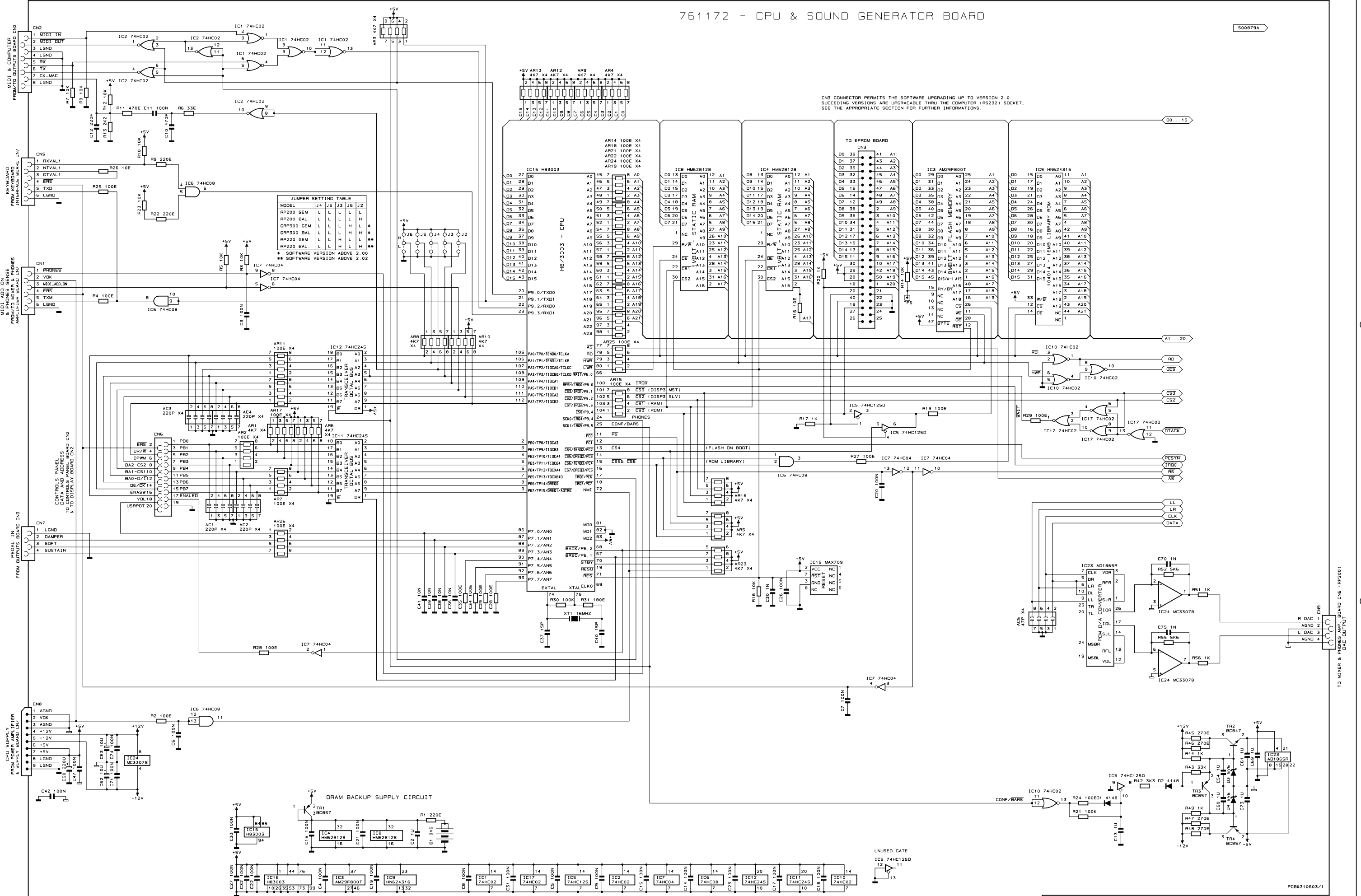


NOTE: ALL COMPONENTS PIN REFERENCE ARE LOCATED ON "CPU & SOUND GENERATOR BOARD" UNLESS OTHERWISE SPECIFIED.

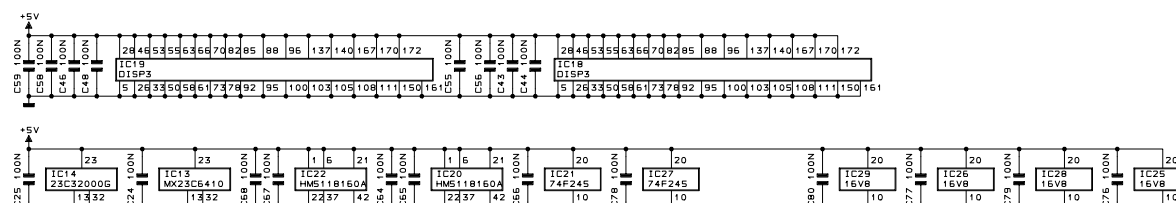
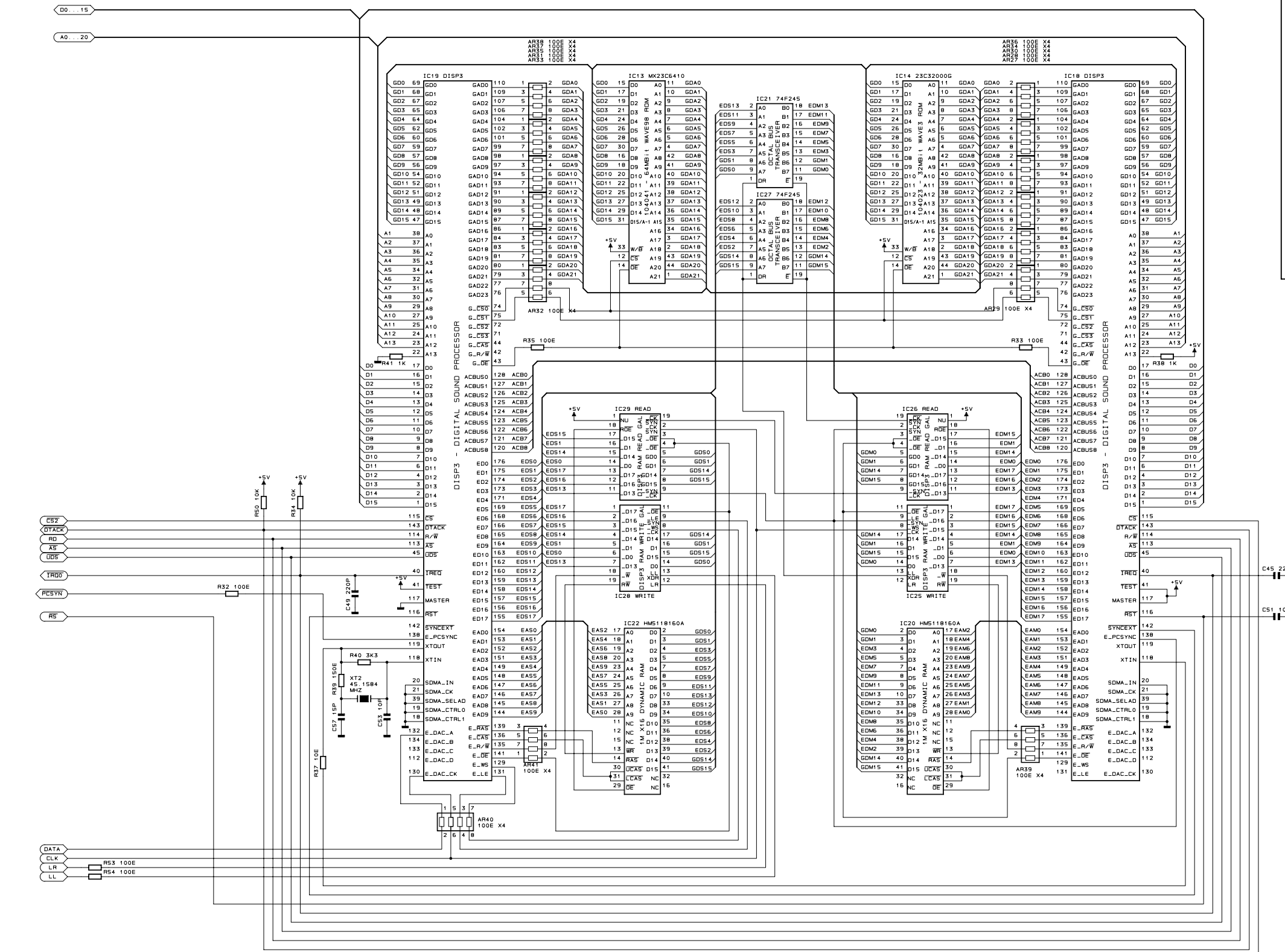


761172 - CPU & SOUND GENERATOR BOARD

500879A



751180 - UPDATING SOFTWARE BOARD



Spare Part List	
Legend	
EU	= Specify European Version (230Vac)
US	= Specify United States Version (115Vac)
R	= Rosewood Finish
B	= Gloss Black Finish
M	= Mahogany Finish
W	= Gloss White Finish
Gem	= Gem Version
Baldwin	= Baldwin Version
Code	Description
Optional Accessories	
130301	2mt Midi Cable
970296	Pianist's Bench (R)
970297	Pianist's Bench (B)
970319	Pianist's Bench (M)
970298	Pianist's Bench (W)
Accessories	
271310	Owner's Manual (Italian-English-French-German) (Gem)
271311	Owner's Manual (English-French-Spanish) (Baldwin)
130274	Mains Cable (EU)
130276	Mains Cable (US)
Consolette	
830756	Stand & Pedals Assembly (R)
830763	Stand & Pedals Assembly (B)
830765	Stand & Pedals Assembly (M)
830764	Stand & Pedals Assembly (W)
720616	* Crossbar with Pedals (B) (M) (R)
720626	* Crossbar with Pedals (W)
720613	** Triple Pedal Assembly (replace entirely)
660655	** Crossbar (B) (M) (R)
660667	** Crossbar (W)
210018	** 1x5mm Adhesive Red Felt (specify mt)
710573	* Speakers Box
770883	** Speakers Box Cables Assembly
130270	*** Speakers Cable with Jack Plug
340928	** Plastic Speaker Box
262083	** 150x391mm Wood Panel
262082	** 150x800mm Wood Panel
262036	** Rear Panel
262035	** Front Panel
261866	** 20x20x200mm Deal Fillet
220120	** 6" 8ohm Full-range Speaker
220118	** 8" 8ohm Woofer Speaker
210242	** Filler for Speaker Box (Specify m²)
210217	** Black Sealer (specify mt)
210215	** Adhesive Rubber Foam 10x1.9mm (Specify mt)
210054	** 1x5mm Adhesive Spik (specify mt)
120684	** M4x10 Sleeve
120413	** WL3.5x30tt Black Screw
120374	** WL4x15tt Black Screw
120063	** M4x20tc Black Screw
660407	* Support for Rear Panel
262031	* Foot (R)
262178	* Foot (B)
262180	* Foot (M)
262179	* Foot (W)
262030	* Left Leg (R)
262175	* Left Leg (B)
262177	* Left Leg (M)
262176	* Left Leg (W)
262029	* Right Leg (R)
262172	* Right Leg (B)
262174	* Right Leg (M)
262173	* Right Leg (W)
171702	* Right Cabinet Support
171701	* Left Cabinet Support
171505	* Angular Fixing
170585	* Metal Foot
129073	* WL4.5x50ts Screw
120681	* MA6x13 Sleeve
120523	* 6mm Black Spring Washer
120489	* 14x6.4x2 Black Nylon Washer
120341	* WL4x20tt Black Screw
120128	* M6x35tc Black Screw
120119	* M4x16tc Black Screw
120070	* M6x20tc Black Screw
Cabinet	
710638	Cover Assembly (R)
710639	Cover Assembly (B)

710640	Cover Assembly (M)
710641	Cover Assembly (W)
340960	* Music Stop (R)(M)
653503	* Music Stop (B)
653504	* Music Stop (W)
262299	* Cover (R)
262300	* Cover (B)
262301	* Cover (M)
262302	* Cover (W)
262271	* Fillet
262037	* Front Cover Bar (R)
262181	* Front Cover Bar (B)
262183	* Front Cover Bar (M)
262182	* Front Cover Bar (W)
120463	* 4.3x12.5x1 Black Washer
120322	* WL4x15tc Black Screw
120288	* WL3x20tc Black Screw
710634	Cabinet Assembly (R)
710635	Cabinet Assembly (B)
710636	Cabinet Assembly (M)
710637	Cabinet Assembly (W)
770903	* Speakers Cables Assembly
660609	* Speaker Jack Socket Support
660405	* 50x240mm Heatsink Grid
510302	* Wooden Parts (R)
510303	* Wooden Parts (B)
510304	* Wooden Parts (M)
510305	* Wooden Parts (W)
262294	** Rear Panel (R)
262295	** Rear Panel (B)
262296	** Rear Panel (M)
262297	** Rear Panel (W)
262042	** Keyboard Cover Guide
262024	** Left Side (R)
262163	** Left Side (B)
262165	** Left Side (M)
262164	** Left Side (W)
262023	** Right Side (R)
262160	** Right Side (B)
262162	** Right Side (M)
262161	** Right Side (W)
261799	** Keyboard Cross-Bar (R)
261836	** Keyboard Cross-Bar (B)
261957	** Keyboard Cross-Bar (M)
261852	** Keyboard Cross-Bar (W)
210054	* 1x5mm Adhesive Spik (specify mt)
171756	* Angular Fixing
171606	* Angular Reinforcement
171605	* Keyboard Crossbar Support
171331	* Left Cover Clamp
171330	* Right Cover Clamp
120684	* M4x10 Sleeve
120681	* MA6x13 Sleeve
120374	* WL4x15tt Black Screw
120341	* WL4x20tt Black Screw
120340	* WL4x12tt Black Screw
120312	* WL4x10tt Black Screw
710643	Music Stand Assembly (R)(Gem)
710645	Music Stand Assembly (B)(Gem)
710647	Music Stand Assembly (M)(Gem)
710642	Music Stand Assembly (R)(Baldwin)
710644	Music Stand Assembly (B)(Baldwin)
710646	Music Stand Assembly (M)(Baldwin)
710648	Music Stand Assembly (W)(Baldwin)
660406	* Stop Pinch Bar for Music Stand
323062	* Adhesive Bumpon Rubber
262051	* Music Stand (R)
262220	* Music Stand (B)
262222	* Music Stand (M)
262221	* Music Stand (W)
171361	* Music Stand Hinge
120289	* WL3x10ts Black Screw
120272	* WL3x10tc Black Screw
710575	Keyboard Cover (R)
710595	Keyboard Cover (B)
710597	Keyboard Cover (M)
710596	Keyboard Cover (W)
324405	* Hinge between Front and Top Keyb. Covers
323069	* 11.1X5mm Bumpon Rubber
320400	* WL2.6x9.5tsp Brass Screw
262041	* Revolving Cross Bar (R)
262193	* Revolving Cross Bar (B)
262195	* Revolving Cross Bar (M)
262194	* Revolving Cross Bar (W)
262040	* Cover Finishing (R)

262190	* Cover Finishing (B)
262192	* Cover Finishing (M)
262191	* Cover Finishing (W)
262039	* Rear Cover (R)
262187	* Rear Cover (B)
262189	* Rear Cover (M)
262188	* Rear Cover (W)
262038	* Front Cover (R)
262184	* Front Cover (B)
262186	* Front Cover (M)
262185	* Front Cover (W)
210017	* 2x10mm Adhesive Black Felt (specify mt)
171774	* Hinge between Covers
171628	* Angular Guide
120684	* M4x10 Sleeve
120336	* WL4x25tt Black Screw
120034	* M4x12tc Black Screw
262033	Rear Stand Panel
120523	6mm Black Spring Washer
120489	14x6.4x2 Black Nylon Washer
120456	6.5x12.5x1.5 Black Washer
120412	WL4x35tt Burnished Screw
120080	M6x30tc Black Screw
120073	M6x50te Black Screw
120070	M6x20tc Black Screw
653491	Left Cheek Block for Keyboard (R)(M)
653456	Left Cheek Block for Keyboard (B)
653493	Left Cheek Block for Keyboard (W)
653490	Right Cheek Block for Keyboard (R)(M)
653455	Right Cheek Block for Keyboard (B)
653462	Right Cheek Block for Keyboard (W)
340933	5x5.9x12 Insulated Bush
340916	Button for Power Switch
340329	Rubber Bush for Cable
340075	PC-Board Spacer
210016	1x10mm Adhesive Black Felt (specify mt)
180779	210x62mm "Gem" Adhesive
180675	40.5x12 "Gem" Adhesive Plate
180674	20x24mm "GM" Logo Adhesive Plate
180785	13X71MM "Pianovelle" Adhesive
180781	75x17mm "Pianovelle" Adhesive
180780	210x62mm "Baldwin Pianovelle" Adhesive
180676	82x13.3mm "Baldwin" Logo Adhesive Plate
171758	Left Arm for Keyboard Cover
171757	Right Arm for Keyboard Cover
171738	Mains Switch Support
120968	Bush for Keyboard Cover
120581	M3 Black Self-Locking Nut
120522	4mm Black Spring Washer
120489	14x6.4x2 Black Nylon Washer
120463	4.3x12.5x1 Black Washer
120412	WL4x35tt Burnished Screw
120405	B3.5x9.5tc Black Screw
120341	WL4x20tt Black Screw
120340	WL4x12tt Black Screw
120293	WL3x25ts Brasscd Screw
120289	WL3x10ts Black Screw
120117	M4x8tc Black Screw
120094	M3x30tsp Black Screw
120063	M4x20tc Black Screw
120059	M4x25tc Black Screw
120028	M3x6tc Black Screw
120025	M3x10tsp Black Screw

Mains & Transformer Assembly	
110614	Mains Socket
770904	Mains Cables Assembly
110320	* Power Switch
768198	Mains Filter Board (Pcb#310643)
230565	* 2.5mH 250V 3A AC Line Filter
140010	* 3 Contacts P=10 Vert Terminal Block
020493	* 100n 250Vac MKP EMI Capacitor "Siemens"
010545	* 4n7 250V Ceramic Capacitor (Iec-UI-Csa)
230130	Transformer 230Vac 220W (EU)
230131	Transformer 115Vac 220W (US)
Power Amplifier & Supply Board	
110020	T5A Fuse 5x20mm (EU)
110010	T2A Fuse 5x20mm (EU)
110083	T2A Fuse 6.3x32mm (US)
110021	T5A Fuse 6.3x32mm (US)
731004	Power Amplifier & Supply Board (Pcb#310604)
340154	* TO3/TO218 Mica Washer
340079	* TO220 Mica Washer
340078	* TO220 Insulated Bush

230527	* BL02RN2-R62 EMI Coil For Signal
230524	* 100uH Switching Coil
171660	* Right Support Board
171659	* Left Support Board
171658	* Heatsink
170716	* TO220 38mm height Heatsink
141101	* 4 Contacts Vert Male Connector
141010	* 4 Contacts Vert Female Connector
140929	* 9 Contacts Vert Male Connector
140917	* 2 Contacts Vert Male Connector
140908	* 6 Contacts Vert Male Small Connector
140010	* 3 Contacts P=10 Vert Terminal Block
120857	* Vertical Male Faston 6.3mm
120581	* M3 Black Self-Locking Nut
120521	* 3mm Black Spring Washer
120255	* B2.9x6.5tc Screw
120003	* M3x8tc Black Screw
110119	* Fuse Clip 10A max (EU) (US)
100965	* TDA7294 70W Audio Amplifier with Mute
100900	* L4960 5-40V 2.5A Switching Regulator
100045	* 7812 +12V 1A Voltage Regulator
100043	* 7912 -12V 1A Voltage Regulator
090183	* BC550C TO92 LN Npn Transistor
080605	* KBL02 4A 200V Rectifier Diode Bridge
080171	* FE6B 6A 100V Fast Recovery Diode
080156	* 1N4002 1A 100V Rectifier Diode
080103	* 1N4148 100mA 75V Signal Diode
052060	* 100K 1/8w 5% Resistor
052054	* 33K 1/8w 5% Resistor
052052	* 22K 1/8w 5% Resistor
052050	* 15K 1/8w 5% Resistor
052048	* 10K 1/8w 5% Resistor
052040	* 2K2 1/8w 5% Resistor
052036	* 1K 1/8w 5% Resistor
052024	* 100E 1/8w 5% Resistor
050131	* 10E 1/4W 5% Resistor
030950	* 470u 16V 20% Low Esr Vert Electrolytic Capacitor
030929	* 4u7 35V 20% Electrolytic Tantalium Capacitor
030880	* 10000uF 25V Snap-In Electrolytic Capacitor
030856	* 4700uF 25V Snap-In Electrolytic Capacitor
030555	* 4700u 50V 20% Snap-In Electrolytic Capacitor
030486	* 100u 50V 20% Vert Electrolytic Capacitor
030485	* 100u 25V 20% Vert Electrolytic Capacitor
030403	* 47u 25V 20% Vert Electrolytic Capacitor
030324	* 22u 50V 20% Vert Electrolytic Capacitor
030245	* 10u 50V 20% Vert Electrolytic Capacitor
030082	* 2u2 50V 20% Vert Electrolytic Capacitor
030005	* 1u 50V 20% Vert Electrolytic Capacitor
021028	* 220n 63V 10% MKT Polyester Capacitor
021024	* 100n 63V 10% MKT Polyester Capacitor
021018	* 33n 63V 10% MKT Polyester Capacitor
021004	* 2n2 63V 10% MKT Polyester Capacitor
010595	* 100n 50V -20+80% Ceramic Cap. Multilayer
010462	* 1n 50V 10% CL2 Ceramic Capacitor
010402	* 330p 50V 10% CL2 Ceramic Capacitor

Crossover & Tweeter Assembly	
731029	Crossover Board (Pcb#310651)
230587	* 3.5mH 0.56mm Crossover Core Coil
230533	* 0.45mH 1mm Crossover Coil
141101	* 4 Contacts Vert Male Connector
120581	* M3 Black Self-Locking Nut
120013	* M3x25tc Black Screw
030348	* 47u 100V 20% Axial Electrolytic Bipolar Capacitor
030171	* 4u7 63V 20% Axial Electrolytic Bipolar Capacitor
229015	1" 8ohm Dome Tweeter Speaker
171780	Tweeter Support
Keyboard Assembly	
720568	Keyboard Assembly (TP10MDS)
840762	* 20 Wires 25cm Length Flat Cable
840761	* 20 Wires 12.5cm Length Flat Cable
761173	* Keyboard Interface Board (Pcb#315024)
141018	** 20 Contacts Vert Female Connector
141011	** 6 Contacts Vert Female Connector
140918	** 2 Contacts Hor Male Connector
100740	** HD6433278 Cpu F=20MHz
100605	** 74HC125 Quad 3-State Buffer
050493	** 10Kx4 1/8w 5% Resistor Array
050492	** 10Kx8 1/8w 5% Resistor Array
050414	** 2K2x4 1/8w 5% Resistor Array
010725	** 20MHz Ceramic Resonator With Capacitors
010662	** 220p 10% 50V X8 Cap Array
010661	** 47p 10% 50V X8 Cap Array
720559	* Keyboard Assembly (TP10MDS)

